

United States
Environmental Protection
Agency

Region 10
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PF 001.001.EPA



November 18, 1994

Reply To
Attn Of: HW-124

Ms. Lisa Green
Environmental Restoration Division
Department of Energy
Idaho Field Office
785 DOE Place
Idaho Falls, Idaho 83401-1562

Re: Idaho Chemical Processing Plant (ICPP), INEL Waste Area
Group (WAG) 3
Technical Memorandum for Radiologically Contaminated Soils
(New Unit NU-21.93)

Dear Ms. Green:

In a submittal received October 19, 1994 you provided the Environmental Protection Agency (EPA) a Technical Memorandum that proposed an approach for assessing radiologically contaminated soils at the ICPP. EPA has reviewed the document, and has enclosed comments.

It is anticipated that the WAG 3 managers will discuss the Technical Memorandum during the week of December 5. If you have any questions prior to those meetings, please contact me at (206) 553-1743.

Sincerely,

Ed Jones, Acting WAG 3 Manager
Federal Facility Section I

Enclosure

cc: D. Nygard, IDEW
S. Reno, IDEW
J. Lyle, DOE
T. Jenkins, DOE

OPTIONAL FORM 98 (7-90)

FAX TRANSMITTAL

of pages 3

To	T. JENKINS	From	E. JONES
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GENERAL SERVICES ADMINISTRATION

Tech Memo Comments:**GENERAL COMMENTS**

The difficulty with proposing field measurements for determining risk levels is that the radiation dose rate corresponding to a $1E-5$ risk is so small as to be almost unmeasurable (above background) with standard radiation survey devices. This is why soil samples are often key in these situations.

Background radiation levels commonly represent lifetime risks in the E-3 range. Against this background, the usefulness of field surveys (particularly data from old surveys) to detect E-4 or E-5 risk levels may be minimal. Survey data usually have their most utility when quantifying larger risks (i.e., where radiation levels are detectably above background).

In addition, field survey data must be evaluated to determine if sources other than soil have contributed to the readings. "Shine" from buildings can often be a confounding factor in associating activity with contaminated soils.

{Note: The WAG 10 managers have considered using field instruments to assess risks posed by widely dispersed, particulate contamination limited to only the first inch or so of surface soils (the so-called "windblown areas" at the INEL). Here, it was felt that these "direct" measurements might provide a more accurate indication of actual external exposure risk than the more "traditional" risk assessment slope-factor approach.}

SPECIFIC COMMENTS

1. Page 2. The factor of 3000 for converting mrem/hr to cpm is typical for some survey instruments but not for all. DOE needs to be more specific about how this figure was arrived at, and what the limits of its applicability are.
2. Page 2. Why does DOE feel it is more appropriate at this OU to use a screening risk of $1E-5$ than $1E-6$? The latter value would be consistent with Track 2 screening risks.
3. Page 2. If 15 mrem/year corresponds to a risk of $3E-4$ (which appears to be correct), then it should follow that a risk of $1E-5$ corresponds to 0.5 mrem/year (or $5.7 E-5$ mrem/hour). Assuming that 3000 cpm equates to 1 mrem/hour, then a risk of $1E-5$ risk would seem to correspond to 0.17 cpm, not 30,000 cpm (as is concluded at the bottom of page three). The WAG managers should discuss this large discrepancy, and determine under what circumstances the proposed approach would be valid at WAG 3.

4. Page 2. Point of clarification: the Tech Memo attempts to correlate field measurements with carcinogenic risk. It should be noted that this conversion takes only one exposure pathway into account, external exposure.
5. Page 2. Point of clarification: the source of equation (1) should be described and referenced.
6. Page 3. Point of clarification: why is the point source activity described as $4.87\text{E}-6$ near the top of the page, but then later (in parentheses) identified as $5.56\text{E}-6$?
7. Page 3. The calculations in equations (3) and (4) are only valid for isolated point sources at the surface of the soil AND only for survey measurements made in direct contact with the point source (not at 1 meter above ground). Is it likely that the past surveys were all taken at soil contact?